

## List of Publications (Academic Year 2024-2025)

1. P. Sharma, **A. P. Sunda**; Molecular Insights of Hydrated Perfluoro Quaternary Ammonium Anion-Exchange Membranes: Ionomer Structure and Hydroxide Ion Transport. *ACS Applied Polymer Materials*, Vol. 7, pp. 1886–1895 (2025).
2. S. Dagar, S. Liu, J. Luo, **A. P. Sunda**; Molecular Insights into Binary Ionic Melts of Protic Ionic Liquid 1, 2, 4-Triazolium Methanesulfonate and Methanesulfonic Acid Electrolytes. *Journal of Physical Chemistry B*, Vol. 129, pp. 338-347 (2025).
3. P. Jhariat, Anil K. U, A. Warriar, **A. P. Sunda**, S. Das, S. Sarfudeen, V. M. Dhavale, T. Panda; Hydroxide Ion Conduction through Viologen-Based Covalent Organic Frameworks (vCOFs): An Approach toward the Advancement. *ACS Applied Materials & Interfaces*, Vol. 16, pp. 23387-23395 (2024).
4. Saloni, P. Kasana, J. Ahmed, **V. Kumar**; Ionic Liquid Induced Aggregation and Precipitation Behavior of Pinacyanol. *ChemistrySelect*, Vol. 9(30), pp. e202402320 (2024).
5. P. Kasana, Saloni, J. Ahmed, **V. Kumar**; Ionic Liquid Induced Aggregation Behavior of Kryptocyanine Dye. *New J. Chem.*, Vol. 48, pp. 17277-17286 (2024).
6. **V. Kumar**, S. Mishra, S. Alam, L.K. Thakur, N. A. Siddiqui; Levels of Chlorpyrifos, Ethion, Lambda-cyhalothrin, Pendimethlin and Triazophos Pesticide Residues in Vegetables. *Journal of Food Composition and Analysis*, Vol. 137, pp. 106853 (2025).
7. S. Mishra, **V. Kumar**, M. K., Singh, M. K. Saini, S. Alam, P. Kasana, Saloni, L. K. Thakur; Monitoring and risk assessment for pesticide residues in vegetables, soil and water in Haryana, India. *Environmental Science and Pollution Research*, Vol. 32, pp. 8358–8377 (2025).
8. R. Sehrawat, P. Vashishth, V. Chaudhri, R. Pundeer, H. Kumar, E. E. Ebenso, **B. Mangla**; Synergistic corrosion inhibition of mild steel by chalcone derivatives and KI in acidic media via computational and experimental methods. *Progress in Organic Coatings*, Vol. 198, pp. 108911 (2025).
9. S. Yadav, C. Vashishth, **V. Chaudhri**, K. Singh, N. Raghav, R. Pundeer.; Development of potential cathepsin B inhibitors: Synthesis of new bithiazole derivatives, in vitro studies supported with theoretical docking studies. *International Journal of Biological Macromolecules.*, Vol. 281, pp. 136290 (2024).
10. V. Lahariy, T. Sharma, **S. Behl**; Study on the structural, dielectric and thermal degradation of poly (methyl methacrylate)-ZnO nanocomposites. *Solid State Communications*, Vol. 397, pp. (2025).
11. A. Ali, H. Arora, A. Rajpu, **A. Kumar**; Metal-Coordinated Ligand Radical Species With Non-innocent Ortho-aminophenol Functionalities: Reactivity and Catalysis. *ChemistrySelect*, Vol. 9, pp. e202404096 (2024).
12. S. Devi, Tripta, **S. Kumar**, R. Kumar, V. Kumar, A. Kumar, G. Singh, P. Kumar; Structural and photocatalytic insights into gadolinium oxide-iron oxide nanocomposites towards efficient environmental remediation. *Inorg. Chem. Commun.*, Vol. 174, pp. 114065 (2025).
13. Tripta, P. Singh, S. Rani, S. Singh, L. Kumar, V. Gupta, **S. Kumar**, P. Kumar; Investigation of Magnetism and Photocatalytic Activity Using Biomass-Derived Carbon Dots. *ChemistrySelect*, Vol. 10, pp. e202402585 (2025).
14. P. Singh, **S. Kumar**, K. Kumar; Biogenic synthesis of novel N-doped carbon-dots photocatalyst for remediation of wastewater. *Diam. Relat. Mater.*, Vol. 152, pp. 111974 (2025).
15. S. Devi, Tripta, Ankita, **S. Kumar**, R. Kumar, V. Kumar, A. Kumar, O. Singh, P. Kumar; Efficient  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>@ NiO nanocomposites as a photocatalyst for the treatment of hazardous Rose Bengal dye. *Physica B: Condens. Matter*, Vol. 696, pp. 416649 (2024).
16. N. Rani, **S. Kumar**, K. Kumar; Synergistic influence of the hybridization between green carbon dots adorned Psidium guajava extracted zinc oxide for boosted photocatalytic efficiency. *Biomass Convers. Biorefin.*, Vol. 15, pp. 18025-18040 (2024).
17. P. Singh, N. Rani, V. Madaan, **S. Kumar**, V. Bhankar, P. Kumar, K. Kumar; Investigation on the impact of green synthesized NC-dots decoration over photocatalytic efficiency of Sg-C<sub>3</sub>N<sub>4</sub>/ZnO. *Diam. Relat. Mater.*, Vol. 151, pp. 111780 (2024).

18. N. Rani, **S. Kumar**, K Kumar ; Green synthesis of N-doped-carbon dots/ZnO for enhanced photocatalytic degradation of methylene blue dye: optimization of reaction parameters. *Environ. Sci. & Pollut. Res.*, Vol. 31, pp. 63408-63425 (2024).
19. Ankita, S. Chahal, S. Singh, S. Devi, V. Kumar, **S. Kumar**, S. Devi, P. Kumar; Preparation of CeO<sub>2</sub>@ AC and CeO<sub>2</sub>@ NF nanocomposites for waste water treatment. *Diam. Relat. Mater.*, Vol. 149, pp. 111643 (2024).
20. Tripti, **S. Kumar**, P. Kumar; Pennistum glaucum-derived carbon dots, synthesized through green approach to degrade Rose Bengal and Methylene Blue dyes photocatalytically. *Diam. Relat. Mater.*, Vol. 148, pp. 111467 (2024).
21. Arpita, P. Kumar, R. Kumar, **S. Kumar**; Harnessing carbon dots from parthenium weed for photocatalytic degradation of malachite green and Fe<sup>3+</sup> ion sensing. *Biomass Convers. Biorefin.*, Vol. 15, pp. 12699-12712 (2024).
22. Arpita, P. Kumar, R. Kumar, C. Hsieh, K. S. Khoo, **S. Kumar**; Biogenic synthesis of hollow carbon dots using cigarette ash for photocatalytic and sensing applications. *Surfaces and Interfaces*, Vol. 52, pp. 104935 (2024).
23. S. Devi, Tripta, Suman, Ankita, A. Kumar, S. Singh, V. Kumar, **S. Kumar**, R. Kumar, P. Kumar; Enhanced photocatalytic activity of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>/MgO nanocomposites for environmental sustainability. *Ceram. Int.*, Vol. 50, pp. 24608-24617 (2024).
24. Sonia, H. Kumari, S. Chahal, Suman, **S. Kumar**, Mahak, P. Kumar, A. Kumar; Hydrothermally synthesised ZnFe<sub>2</sub>O<sub>4</sub>/ZnO heterojunction nanocomposites for enhanced RB dye degradation via Z-scheme photocatalysis. *Mater. Chem. Phys.*, Vol. 322, pp. 129560 (2024).
25. R. Khanna, M. Dudi, **B. Mangla**, V. Kalia, A. Sihmar, H. Tanwar, H. Dahiya; Assessment of pyrazole Schiff base's corrosion inhibition effectiveness incorporating oxadiazole moiety on mild steel in 1 M HCl: A holistic theoretical and experimental analysis. *Journal of Molecular Structure*, pp. 139066 (2024).
26. R. Sehrawat, P. Vashishth, H. Bairagi, S. K. Shukla, H. Kumar, G. Ji, **B. Mangla**; Coordination bonding and corrosion inhibition characteristics of chalcone compounds for metals: An inclusive review based on experimental as well as theoretical perspectives", 215820, 1 September 2024. *Coordination Chemistry Reviews*, Vol. 514, pp. 215820 (2024).
27. H. Bairagi, P. Vashishth, G. Ji, S. K. Shukla, E. E. Ebenso, **B. Mangla**; Polymers and their composites for corrosion inhibition application: Development, Advancement, and Future Scope – a critical review. *Corrosion Communications*, Vol. 15, pp. 79-94 (2024).
28. S. K. Rai, A. K. Singh, A. A. Mansour, R. Salghi, H. Lgaz, **B. Mangla**, G. Ji ; Experimental and computational investigation of waste pineapple crown for mild steel corrosion inhibition in salty water: Pineapple crown for corrosion inhibition of mild steel in NaCl. *Moroccan Journal of Chemistry*, Vol. 12, pp. 931-1398 (2024).
29. R. Sehrawat, R. Pundeer, S. Yadav, P. Vashishth, H. Bairagi, S. K. Shukla, **B. Mangla**; Insights of newly synthesized novel pyrazole compounds for mild steel corrosion inhibition in an acidic environment by experimental and computational calculations. *Journal of Molecular Structure*, Vol. 1316, pp. 139017 (2024).
30. I. Pandey, A. V. Ullas, C. K. Rastogi, M. K. Singh, V. Kumar, **B. Mangla**, G. Ji; Extract Preparation of Waste Lady Finger Caps Using Ethanol, Generation of Extract's Layers on Copper Through Drop Casting Without and with NiO Nanoparticles, and Study of their Corrosion Performances in Saline Water. *Waste and Biomass Valorization*, Vol. 16, pp. 971-985 (2024).
31. R. Sehrawat, S. Yadav, R. Pundeer, D. K. Sharma, **B. Mangla**; Synthesis of novel thiazole derivatives and their assessment as efficient corrosion inhibitors on mild steel in acidic medium. *Progress in Organic Coatings*, Vol. 203, pp. 109156 (2024).
32. R. Sehrawat, P. Vashishth, V. Chaudhri, R. Pundeer, H. Kumar, E. E. Ebenso, **B. Mangla** ; Synergistic corrosion inhibition of mild steel by chalcone derivatives and KI in acidic media via computational and experimental methods. *Progress in Organic Coatings*, Vol. 198, pp. 108911 (2025).
33. R. Sehrawat, **B. Mangla**; Coordination interaction of biologically important macromolecules with metals and alloys for corrosion protection: An extensive study. *Coordination Chemistry Reviews*, Vol. 525, pp. 216346 (2025).
34. P. Vashishth, H. Bairagi, R. Sehrawat, **B. Mangla**; Environmentally Sustainable Approach of Corrosion Inhibition of Mild Steel in 1 N HCl and 1 N H<sub>2</sub>SO<sub>4</sub> via Antihistamine Loratadine (LT) and Its Amine Derivatives: Computational and Experimental Analysis. *ACS Omega*, Vol. 10, pp. 5332-5350 (2025).

35. R. Sehwat, P. Vashishtha, N. Raghav, A. Bendic, A. J. Ahamed, N. Mujafarkani, **B. Mangla**; Advanced synthesis and multifaceted characterization of a 4,4-diaminodiphenylmethane-melamine-formaldehyde terpolymer: anti-corrosion performance and antimicrobial potential in 1 M hydrochloric acid. *RSC Adv.*, Vol. 15, pp. 11098-11114 (2025).
36. H. Bairagi, P. Vashishth, R. Sehwat, D.K. Sharma, **B. Mangla**; Inhibition studies of efficacy of nanoparticles-reinforced composite against mild steel degradation exposed to 1.0 M HCl. *anadian Metallurgical Quarterly*, Vol. , pp. 1–20 (2025).
37. A. K. Semwal, A. S. Pangtey, M. K. Singh, V. Kumar, **B. Mangla**, S.K. Shukla, P. Tyagi, G. Ji; Synthesis of ethanolic extract of Buddhist pine leaves and its deposition on copper's surface by drop casting for corrosion prevention in salty water. *anadian Metallurgical Quarterly*, Vol. , pp. 1–17 (2025).
38. B. Sheokand, M. Vats, S. R. Pathak, B. Yadav, Kumar, D.S. Negi, R.S. Singh, A. Singh, **B. Mangla**; Development and Characterization of a Novel Wound-Healing Film Incorporating Aloe vera Extract and Copper Ferrite Nanoparticles. *Topics in Catalysis*, Vol. , pp. (2025).
39. A. Dhayal, H. Kumar, **B. Mangla**, D. Singh; Harnessing the power of carbohydrates: Chitosan and starch-based nanocomposites for sustainable developments. *Inorganic Chemistry Communications*, Vol. 171, pp. 113597 (2025).
40. S. Jan, J. Varma, A. Sharma, M. Aalim, M. Choudhary, **B. Mangla**; Wet Chemical Co-precipitation Route of CuS Nanoparticles: Synthesis and Characteristics Studies Towards Photo-Degradation of 2-Chlorophenol. *Topics in Catalysis*, pp. (2025).
41. H. Kumar, R. Kumari, D. Singh, **B. Mangla** ; Advances in nanomaterials based electrochemical sensors for rapid detection of food additives: A comprehensive review. *TrAC Trends in Analytical Chemistry*, Vol. 181, pp. 118011 (2025).
42. **R. Kumar**, R. R. Nair, R. Prakash, T. Bae, T. Dohi, O. Prakash;  $\alpha, \alpha$ -Dibromoketones as Synthetic Equivalents of  $\alpha$ Bromoketones for the Synthesis of Thiazolo [3, 2-a] benzimidazoles. *Letters in Organic Chemistry*, Vol. 21, pp. 209 (2024).
43. N. Miyamoto, D. Koseki, K. Sumida, E. E. Elboray, N. Takenaga, **R. Kumar**, T. Dohi; Auxiliary strategy for the general and practical synthesis of diaryliodonium (III) salts with diverse organocarboxylate counterions. *Beilstein Journal of Organic Chemistry*, Vol. 20, pp. 1020 (2024).
44. Rimi, B. Uttam, D. Sharma, V. V. Zhdankin, **R. Kumar**; Pyrazole-tethered isoxazoles: hypervalent iodine-mediated, metal-free synthesis and biological evaluation. *Arkivoc*, pp. 202412328 (2024).